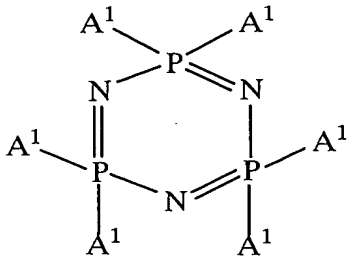
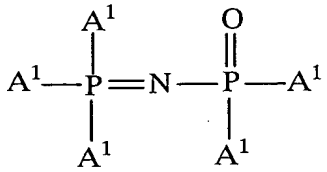
CLAIMS

1. A support salt for a cell comprising a compound represented by the following formula (I) or (II):



..... (I)



..... (II)

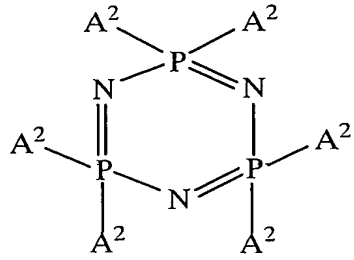
(in the formulae (I) and (II), A^1 is independently NRLi or F, and at least one A^1 is NRLi, and R is a monovalent substituent).

2. A support salt for a cell according to claim 1, wherein R in the formula (I) or (II) is a phenyl group.

3. A method of producing a support salt for a cell, which comprises the steps of:

(i) a step of reacting a phosphazene derivative represented by the following formula (III) with a primary amine represented by the following formula (IV) to produce a phosphazene derivative represented by the following formula (V); and

(ii) a step of adding the phosphazene derivative of the formula (V) with a lithium alkoxide to produce a compound represented by the following equation (I):

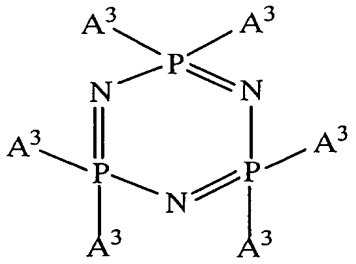


..... (III)

(wherein A^2 is F or Cl)

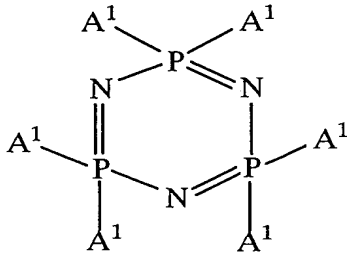
$R - NH_2$ ..... (IV)

(wherein R is a monovalent substituent)



..... (V)

(wherein A^3 is independently NHR or F, and at least one A^3 is NHR, and R is a monovalent substituent)



..... (I)

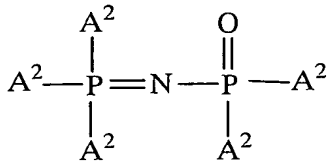
(wherein A^1 is independently NRLi or F, and at least one A^1 is NRLi, and R is a monovalent substituent).

4. A method of producing a support salt for a cell according to claim 3, wherein the primary amine of the formula (IV) is aniline.

5. A method of producing a support salt for a cell, which comprises the steps of:

(i) a step of reacting a phosphazene derivative represented by the following formula (VI) with a primary amine represented by the following formula (IV) to produce a phosphazene derivative represented by the following formula (VII); and

(ii) a step of adding the phosphazene derivative of the formula (VII) with a lithium alkoxide to produce a compound represented by the following equation (II):

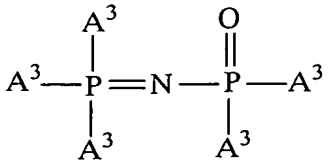


..... (VI)

(wherein A^2 is F or Cl)

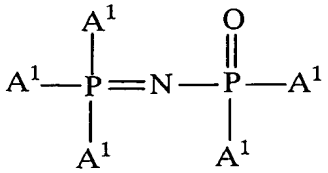
$R - NH_2$ ..... (IV)

(wherein R is a monovalent substituent)



· · · · · (VII)

(wherein A^3 is independently NHR or F, and at least one A^3 is NHR, and R is a monovalent substituent)



· · · · · (II)

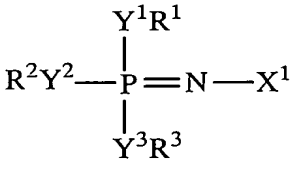
(wherein A^1 is independently NRLi or F, and at least one A^1 is NRLi, and R is a monovalent substituent).

6. A method of producing a support salt for a cell according to claim 5, wherein the primary amine of the formula (IV) is aniline.

7. A non-aqueous electrolyte cell comprising a positive electrode, a negative electrode and a non-aqueous electrolyte comprising an aprotic organic solvent and a support salt as claimed in claim 1.

8. A non-aqueous electrolyte cell according to claim 7, wherein a phosphazene derivative or an isomer of a phosphazene derivative is added to the aprotic organic solvent.

9. A non-aqueous electrolyte cell according to claim 8, wherein the phosphazene derivative has a viscosity at 25°C of not more than 300 mPa·s (300 cP) and is represented by the following formula (VIII) or (IX):



· · · · · (VIII)

(wherein R^1, R^2 and R^3 are independently a monovalent substituent or a halogen element, and X^1 is a substituent containing at least one element selected from the group consisting of carbon, silicon, germanium, tin, nitrogen, phosphorus, arsenic, antimony, bismuth, oxygen, sulfur, selenium, tellurium and polonium, and Y^1, Y^2 and Y^3 are independently a bivalent connecting group, a bivalent element or a single bond)

$(NPR^4_2)_n$ ····· (IX)

(wherein R^4 is independently a monovalent substituent or a halogen element, and n is 3-15).

10. A non-aqueous electrolyte cell according to claim 9, wherein the phosphazene derivative of the formula (IX) is represented by the following formula (X):

$(NPF_2)_n$ ····· (X)

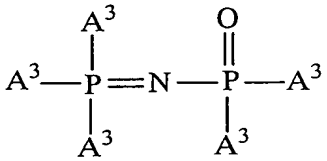
(wherein n is 3-13).

11. A non-aqueous electrolyte cell according to claim 9, wherein the phosphazene derivative of the formula (IX) is represented by the following formula (XI):

$(NPR^5_2)_n$ ····· (XI)

(wherein R5 is independently a monovalent substituent or fluorine, and at least one of all R^5s is a fluorine containing monovalent substituent or fluorine, and n is 3-8, provided that all of R^5s are not fluorine).

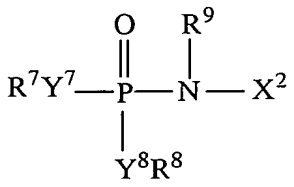
12. A non-aqueous electrolyte cell according to claim 8, wherein the phosphazene derivative is a solid at 25°C and is represented by the following formula (XII):



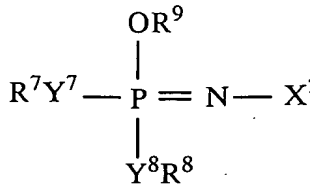
····· (VII)

(wherein R^6 is independently a monovalent substituent or a halogen element, and n is 3-6).

13. A non-aqueous electrolyte cell according to claim 8, wherein the isomer of the phosphazene derivative is represented by the following formula (XIII) and is an isomer of a phosphazene derivative represented by the following formula (XIV):



····· (XIII)



$$\cdots\cdots \text{(XIV)}$$

(in the formulae (XIII) and (XIV), R^7, R^8 and R^9 are independently a monovalent substituent or a halogen element, and X^2 is a substituent containing at least one element selected from the group consisting of carbon, silicon, germanium, tin, nitrogen, phosphorus, arsenic, antimony, bismuth, oxygen, sulfur, selenium, tellurium and polonium, and Y^7 and Y^8 are independently a bivalent connecting group, a bivalent element or a single bond).

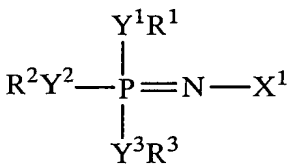
14. A polymer cell comprising a positive electrode, a negative electrode, an electrolyte comprising a support salt as claimed in claim 1 and a polymer.

15. A polymer cell according to claim 14, wherein the polymer is at least one of polyethylene oxide, polyacrylate and polypropylene oxide.

16. A polymer cell according to claim 14 or 15, wherein the polymer has a weight average molecular weight of not less than 10000.

17. A polymer cell according to claim 16, wherein the weight average molecular weight of the polymer is not less than 5000000.

18. A polymer cell according to any one of claims 14-18, wherein the phosphazene derivative has a viscosity at 25°C of not more than 300 mPa·s (300 cP) and is represented by the following formula (VIII) or (IX):



$$\cdots\cdots \text{(VIII)}$$

(wherein R^1, R^2 and R^3 are independently a monovalent substituent or a halogen element, and X^1 is a substituent containing at least one element selected from the group consisting of carbon, silicon, germanium, tin, nitrogen, phosphorus, arsenic, antimony, bismuth,

oxygen, sulfur, selenium, tellurium and polonium, and Y^1, Y^2 and Y^3 are independently a bivalent connecting group, a bivalent element or a single bond)

$$(NPR^4_2)_n \quad \cdots\cdots (IX)$$

(wherein R^4 is independently a monovalent substituent or a halogen element, and n is 3-15).

21. A polymer cell according to claim 20, wherein the phosphazene derivative of the formula (IX) is represented by the following formula (X):

$$(NPF_2)_n \quad \cdots\cdots (X)$$

(wherein n is 3-13).

22. A polymer cell according to claim 20, wherein the phosphazene derivative of the formula (IX) is represented by the following formula (XI):

$$(NPR^5_2)_n \quad \cdots\cdots (XI)$$

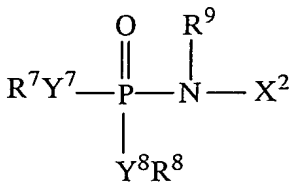
(wherein R^5 is independently a monovalent substituent or fluorine, and at least one of all R^5s is a fluorine containing monovalent substituent or fluorine, and n is 3-8, provided that all of R^5s are not fluorine).

23. A polymer cell according to claim 19, wherein the phosphazene derivative is a solid at 25°C and is represented by the following formula (XII):

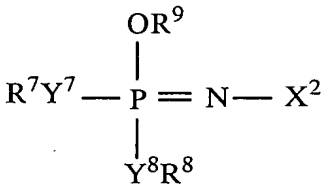
$$(NPR^6_2)_n \quad \cdots\cdots (XII)$$

(wherein R^6 is independently a monovalent substituent or a halogen element, and n is 3-6).

24. A polymer cell according to claim 19, wherein the isomer of the phosphazene derivative is represented by the following formula (XIII) and is an isomer of a phosphazene derivative represented by the following formula (XIV):



..... (XIII)



..... (XIV)

(in the formulae (XIII) and (XIV), R^7, R^8 and R^9 are independently a monovalent substituent or a halogen element, and X^2 is a substituent containing at least one element selected from the group consisting of carbon, silicon, germanium, tin, nitrogen, phosphorus, arsenic, antimony, bismuth, oxygen, sulfur, selenium, tellurium and polonium, and Y^7 and Y^8 are independently a bivalent connecting group, a bivalent element or a single bond).

25. A polymer cell according to any one of claims 19-24, wherein a total content of the phosphazene derivative and the isomer of the phosphazene derivative in the electrolyte is at least 0.5% by mass.

26. A polymer cell according to claim 25, wherein the total content of the phosphazene derivative and the isomer of the phosphazene derivative in the electrolyte is at least 2.5% by mass.